What is claimed is:

1. A pressure transducer comprising:

a sensing tube at least a portion of which mechanically deforms in response to a pressure on one side thereof; and

at least one strain gage on the sensing tube for measuring deformation of the at least a portion of the sensing tube.

2. The pressure transducer of claim 1, wherein the sensing tube has a perimeter, and the at least a portion of the sensing tube extends fully around the perimeter.

3. The pressure transducer of claim 1, wherein the tube has a perimeter, and the at least a portion of the sensing tube does not extend fully around the perimeter.

4. The pressure transducer of claim 1, wherein the sensing tube has a circular cross section.

5. The pressure transducer of claim 4, further comprising a pipe flange for connecting a pipe to the sensing tube, wherein an inner diameter of the pipe flange and an inner diameter of the sensing tube are substantially identical.

6. The pressure transducer of claim 5, wherein the pipe flange has threads thereupon to mate with threads on a pipe segment which has an inner diameter which is substantially identical to the inner diameter of the pipe flange.

7. The pressure transducer of claim 1, wherein the sensing tube has a rectangular cross section.

8. The pressure transducer of claim 1, wherein the sensing tube has a square cross section.

9. The pressure transducer of claim 1, further comprising a flow restriction in the sensing tube, the least one strain gage including one or more strain gages one each side of the flow restriction for determining the pressure drop across the flow restriction.

10. The pressure transducer of claim 9, wherein the flow restriction includes an orifice.

11. The pressure transducer of claim 1, wherein the at least one strain gage is on another side of the at least a portion of the sensing tube which is opposite the one side.

12. The pressure transducer of claim 1, further comprising a housing encircling the sensing tube.

13. The pressure transducer of claim 12, wherein the housing includes a cover and a pair of pipe connectors for coupling the housing-to-pipe segments.

14. The pressure transducer of claim 13, wherein the cover is cylindrical.

15. The pressure transducer of claim 13, wherein the housing further includes a cylinder between the sensing tube and the cover.

16. The pressure transducer of claim 13, wherein the cover includes one or more access doors.

17. The pressure transducer of claim 16, wherein at least one of the access doors has an electrical connector therein.

18. The pressure transducer of claim 13, wherein the cover has open ends, each of the open ends having a housing flange attached thereto.

19. The pressure transducer of claim 12, wherein the sensing tube is attached to the housing.

20. The pressure transducer of claim 19, wherein the sensing tube includes an end portion which is attached to the housing and a central portion to which the at least one strain gage is mounted.

21. The pressure transducer of claim 20, wherein the end portion has a thicker wall than the central portion.

22. The pressure transducer of claim 21, wherein the sensing tube further includes a curved portion linking the end portion and the central portion.

23. The pressure transducer of claim 22, wherein the curved portion has a constant radius of curvature.

24. The pressure transducer of claim 22, wherein the curved portion is tapered, having a radius of curvature which increases closer to the thinner portion.

25. The pressure transducer of claim 22, wherein at least one of the at least one strain gage is located adjacent to the curved portion.

26. The pressure transducer of claim 21, wherein the end portion includes a connecting member which is attached to the housing and a rib which is mechanically isolated from the housing.

27. The pressure transducer of claim 26, wherein the connecting member is mechanically isolated from the rib by a groove between the connecting member and the rib.

28. The pressure transducer of claim 27, wherein one end of the sensing tube is attached to the housing and another end of the sensing tube is slidably mounted in the housing.

29. The pressure transducer of claim 28, wherein the one end is welded or mechanically attached to the housing and the another end is mounted to the housing with a flexible seal therebetween.

30. The pressure transducer of claim 21, wherein the sensing tube includes a second end portions, the end portions having different outside diameters.

31. The pressure transducer of claim 1, wherein the transducer includes at least two strain gages, one of the at least two gages used for measuring axial strain and another of the at least two gages used for measuring circumferential strain.

32. The pressure transducer of claim 1, wherein the transducer includes at least four strain gages, at least two of the gages used for measuring axial strain and another at least two of the gages used for measuring circumferential strain.

33. The pressure transducer of claim 32, wherein the at least two of the gages used for measuring axial strain and the another at least two of the gages used for measuring circumferential strain are connected together in a Wheatstone bridge.

34. The pressure transducer of claim 1, wherein the sensing tube is made of metal.

35. The pressure transducer of claim 1, wherein the at least a portion of the sensing tube includes a thinner portion which amplifies the changes in shape.

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36. A pressure transducer comprising:

a sensing tube at least a portion of which changes shape in response to a pressure on one side thereof; and

a sensor for measuring the changes in shape of the at least a portion of the sensing tube.

37. The pressure transducer of claim 36, wherein the sensor includes a means for measuring the changes in shape of the at least a portion of the sensing tube.

38. The pressure transducer of claim 36, wherein the sensor includes at least one strain gage mounted on the sensing tube for measuring deformation of the at least a portion of the sensing tube.

39. The pressure transducer of claim 36, wherein the sensor includes at least one piezoelectric device for measuring deformation of the at least a portion of the sensing tube.

40. The pressure transducer of claim 36, wherein the sensor includes a light source and a light detector for measuring deflection of the at least a portion of the sensing tube.

41. The pressure transducer of claim 36, wherein the sensor includes a capacitance probe for measuring deflection of the at least a portion of the sensing tube.

42. The pressure transducer of claim 36, wherein the sensor includes a continuum wave source and a continuum wave detector for measuring deflection of the at least a portion of the sensing tube.

43. The pressure transducer of claim 36, wherein the sensing tube is made of a generally rigid material.

44. The pressure transducer of claim 43, wherein the generally rigid material is a metal.

45. The pressure transducer of claim 36, further comprising a housing surrounding the sensing tube and the sensor.

46. The pressure transducer of claim 36, wherein the sensing tube includes a flow restriction therein.

137 47. A method of measuring fluid pressure, comprising:

measuring strain in a flow passage due to fluid flowing therewithin, as a representation of the fluid pressure.

48. The method of claim 47, wherein the measuring strain includes measuring strain with one or more strain gages placed on an outer surface of the flow passage.

49. The method of claim 47, further comprising placing the strain gages in a bridge configuration to increase an output signal.

50. The method of claim 47, wherein the flow passage is a sensing tube, and further comprising enclosing the sensing tube and the strain gages in a housing.

51. The method of claim 50, further comprising structurally isolating at least a portion of the sensing tube from the housing.

52. The method of claim 50, further comprising placing the strain gages on portions of the sensing tube which have a maximum strain response.

53. The method of claim 47, wherein the measuring strain includes measuring both axial and circumferential strains.

54. A flow measuring device comprising:

a sensing tube having a flow restriction therein, the sensing tube having an upstream portion which changes shape in response to an upstream pressure upstream of the flow restriction, and a downstream portion which changes shape in response to a downstream pressure downstream of the flow restriction;

an upstream sensor for measuring changes in shape of the upstream portion; and

a downstream sensor for measuring changes in shape of the downstream portion.

55. The device of claim 54, wherein the upstream sensor includes at least one upstream strain gage and the downstream sensor includes at least one downstream strain gage.

56. The device of claim 54, wherein the upstream sensor includes two upstream strain gages and the downstream sensor includes two downstream strain gages, the upstream and downstream strain gages being connected in a Wheatstone Bridge.

57. The device of claim 54, wherein the flow restriction is an orifice.

58. The device of claim 54, wherein a wall thickness of the sensing tube is greater in the vicinity of the flow restriction than it is in the upstream and downstream portions.

59. The device of claim 54, further comprising a temperature measuring device coupled to the sensing tube.

60. The transducer of claim 1, further including a liner of energy-absorbing material along an inner surface of the sensing tube.

61. A measurement device comprising:

a body defining a flow passage therethrough, the flow passage having an inlet direction, and an outlet direction different from the inlet direction;

a sensing element at one end of the body, the sensing element having a strain gage thereupon for measuring deformation of at least a portion of the sensing element; and

a flexible element at an opposite end of the body and allowing flow therethrough in communication with the flow passage.

62. The device of claim 61, wherein the body includes a shaped conduit.

63. The device of claim 62, wherein the shaped conduit includes a conduit portion having a substantially 180° bend.

64. The device of claim 62, wherein the shaped conduit includes a conduit portion having a substantially right-angle bend.

65. The device of claim 61, wherein the flexible element is a bellows coupling.

66. The device of claim 61, wherein the sensing element includes a sensing tube which allows flow therethrough, in communication with the flow passage.

67. The device of claim 66, wherein the sensing element has an annular cross-section.

68. The device of claim 67, wherein the sensing element has an end portion and a central portion, the end portion having a thicker wall than the central portion.

69. The device of claim 66, further comprising a flexible enclosure around the sensing element.

70. The device of claim 61, further comprising a structural element attached on opposite sides of the body, outboard of the straining element and the flexible element.

71. The device of claim 70, wherein the structural element is a conduit at least partially enclosing the body.

72. The device of claim 70, wherein the structural element is a straight bar or rod.

73. The device of claim 61, wherein the at least one strain gage includes a first set of strain gages for making flow measurements and a second set of strain gages for making pressure measurements.